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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,905	04/20/2001	Kenichiro Kobayashi	KIK01 P322	1673
277	7590	06/08/2004	EXAMINER	
PRICE HENEVELD COOPER DEWITT & LITTON, LLP			SUN, XIUQIN	
695 KENMOOR, S.E.			ART UNIT	
P O BOX 2567			PAPER NUMBER	
GRAND RAPIDS, MI 49501			2863	

DATE MAILED: 06/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/838,905

Applicant(s)

KOBAYASHI, KENICHIRO

Examiner

Xiuqin Sun

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6-9,12-15 and 18-49 is/are rejected.
- 7) ☒ Claim(s) 4,5,10,11,16 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Response to Amendment

1. The addition of the new claims 18-49 is acknowledged.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 6-9, 12 and 18-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiyoshi (JP07110216, English translation, hereafter referred to as Hiyoshi '216) in view of Newman (U.S. Pat. No. 4824250) and Hiyoshi (JP09049706, English translation, hereafter referred to as Hiyoshi '706).

Hiyoshi '216 teaches a method and apparatus for measuring the amount which an object to be measured has moved in a plane using a granular speck pattern generated by a reflecting laser beam in non-contact fashion (see Abstract, Fig. 1; sections 0002, 0006 and 0007), comprising the steps and means of: irradiating an object to be measured with a laser beam (sections 0009 and 0012); directly detecting the granular speck pattern generated by the reflecting laser beam by a detector, in an environment, the environment not being a darkroom, and using the detected speck pattern as an index (Fig. 1; sections 0012, 0015 and 0016); calculating the amount of movement of the object based on the movement of a new granular speck pattern

corresponding to the moved position of the object with respect to said index (sections 0018 and 0031); and displaying a result of the calculation as a numerical value of the measured amount of movement (sections 0012 and 0022). Hiyoshi '216 also teaches an apparatus for measuring the amount which an object to be measured has moved in a plane using a granular speck pattern generated by a reflecting laser beam (see Abstract), said apparatus comprising: a laser projector to generate a granular speck pattern corresponding to a rough surface of an object to be measured (Fig. 1; sections 0009, 0012 and 0014); a line sensor to pick up said granular speck pattern used as an index (Fig. 1; sections 0012, 0013 and 0018); an A/D converter coupled to said line sensor to convert an analog signal supplied from said line sensor to a digital signal (sections 0013, 0016 and 0018); a processing unit coupled to the A/D converter to calculate the amount of movement of said object on the basis of movement of the granular speck in said pattern with respect to a change in the pixel interval of said granular speck pattern picked up by said line sensor and represented by said A/D converted signal (sections 0007, 0016, 0018 and 0022); and a display coupled to said processing unit to display the amount of movement calculated by said processing unit (Fig. 1; sections 0018 and 0023). The teachings of Hiyoshi '216 further include: an electrical circuit coupled to said line sensor for calculating the amount of movement of said object on the basis of movement of the granular speck in said pattern with respect to a pixel interval of said granular speck pattern picked up by said line sensor and displaying the amount of movement calculated by said electrical circuit (Fig. 1; sections 0007, 0016, 0018 and 0022 and 0023); and a laser source for generating a granular

speck pattern corresponding to a rough surface of an object to be measured (Fig. 1; sections 0009, 0012, 0015 and 0016).

Hiyoshi '216 does not mention that: directly sensing the granular speck pattern without the use of a lens; moving said object toward and/or away from said detector and measuring the amount which said object has moved back and forth; a light shield position in front of said line sensor; and said light shield does not interfere with said granular speck pattern detected by said detector.

Newman discloses an apparatus which scans a test object with a laser beam to detect defects in the object, and teaches the means of directly sensing speckle patterns of a moving object without the use of a lens (col. 2, lines 11-21, lines 24-35; col. 6, lines 6-16 and col. 8, lines 47-59).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Newman lensless sensing technique in the Hiyoshi '216 system in order to achieve picking up of the speckle pattern accurately without using complex and expensive optical components (Newman, col. 8, lines 3-13 and lines 53-59).

Hiyoshi '706 discloses a method of measuring the movement magnitude of a measured object which carries out longitudinal slide movement to a measuring instrument using a laser beam, and teaches: the steps and means of moving said object toward and/or away from said measuring instrument and measuring the amount which said object has moved back and forth (see the entire English translation of the disclosure). Hiyoshi '706 also teaches: a light shield position in front of said line sensor,

and said light shield does not interfere with said granular speck pattern detected by said line sensor (see the entire English translation of the disclosure).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Hiyoshi '706 in the Hiyoshi '216 system in order to provide a method and apparatus that can measure the movement of an object moving toward and away from the detector in non-contacting fashion (Hiyoshi '706, Abstract; sections 0001 and 0008).

4. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiyoshi '216 in view of Newman, Hiyoshi '706 and Burke (U. S. Pat. No. 4798469).

Hiyoshi '216, Newman and Hiyoshi '706 teach a method and apparatus that includes the subject matter discussed as applied to claims 1-12 above except that: a collimated light source for generating a granular speck pattern corresponding to the surface of an object to be measured.

Burke discloses a non-contact gage system, and teaches: a collimated light source for generating a granular speck pattern corresponding to the surface of an object to be measured (col. 4, lines 56-65 and col. 11, lines 17-33).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teachings of Burke collimated light source in Hiyoshi '706 system in order to provide a better embodiment of the Hiyoshi '216, Newman and Hiyoshi combination and measure the amount of movement of an object back and forth more accurately (col. 4, lines 56-65).

Allowable Subject Matter

5. Claims 4, 5, 10, 11, 16 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reasons for Allowance

6. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of independent claims 4, 5, 10, 11, 16 and 17 is the inclusion of the limitation that said light shield comprises a tube and said tube is cylindrical. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Response to Arguments

8. Applicant's arguments filed 04/26/2004 with respect to claims 1-17 have been considered but they are not persuasive.

The Applicants' argued that "there is no suggestion or motivation either, in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a combination of Hiyoshi '216 and the Newman '250 patent to provide an apparatus than can measure the movement of an object toward and away from a detector". This argument is not persuasive. The Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). The Examiner further recognizes that the test for obviousness is not whether the features of a second reference may be bodily incorporated into the structure of the

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primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, it is deemed that all the cited prior art references are in the same area. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine or modify the teachings of those reference in order to make an improvement or a mere application of the known inventions. Moreover, the Newman patent does suggest that the size of the speckle pattern varies with the distance of the object from the detector, that is, the magnitude of the longitudinal slide movement of the object with respect to the detector can be used to evaluate the resulting change in the size of the speckle pattern or vice versa (Newman, col. 8, lines 3-13). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the teaching of Hiyoshi '706, as motivated by Newman, in the combination of Hiyoshi '216 and Newman in order to measure the movement of an object moving toward and away from the detector by calculating the change of the spatial characteristics (such as the size) of the speckle patterns (Hiyoshi '706, sections 0032-0034). The mere application of a known technique (Hiyoshi '706) to a specific instance by those skilled in the art would have been obvious.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiuqin Sun whose telephone number is (571)272-2280. The examiner can normally be reached on 6:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571)272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


XS

June 2, 2004

Xiuqin Sun
Examiner
Art Unit 2863

BRYAN BUI
PRIMARY EXAMINER

